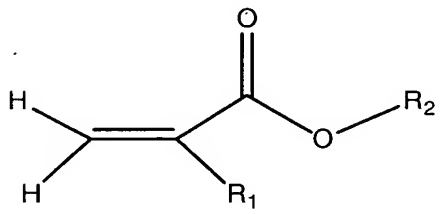
WHAT IS CLAIMED IS:

1. A photocurable ferromagnetic composition comprising:

an acrylated epoxy oligomer;

an ethylenically unsaturated monomer having Formula I:



I

wherein R_1 is hydrogen or substituted or unsubstituted alkyl; and R_2 is substituted or unsubstituted alkyl having more than 4 carbon atoms, cycloalkyl, cycloalkenyl, or substituted or unsubstituted aryl;

a photoinitiator; and

a magnetic powder.

2. The photocurable ferromagnetic composition of claim 1 wherein R_1 is hydrogen or methyl; and R_2 is isoborynl, phenyl, benzyl, dicylcopentenyl, diclypentenyl oxyethyl, cyclohexyl, and naphthyl.

3. The photocurable ferromagnetic composition of claim 1 wherein the magnetic powder is ferrite.

4. The photocurable ferromagnetic composition of claim 1 wherein:

the acrylated epoxy oligomer present in an amount from 2% to 6% of the weight of the ferromagnetic composition;

the photoinitiator present in an amount from 1 % to 10 % of the weight of the ferromagnetic composition; and

the magnetic powder present in an amount from 20 % to 60 % of the weight of the ferromagnetic composition.

5. The photocurable ferromagnetic composition of claim 1 further comprising an acrylated aliphatic oligomer mixture.

6. The photocurable ferromagnetic composition of claim 5 wherein the acrylated aliphatic oligomer mixture is present in an amount from 15 % to 45 % of the weight of the ferromagnetic composition.

7. The photocurable ferromagnetic composition of claim 5 further comprising a flow promoting agent.

8. The photocurable ferromagnetic composition of claim 7 wherein the flow promoting agent is present in an amount from 0.1 % to 6 % of the weight of the ferromagnetic composition.

9. The photocurable ferromagnetic composition of claim 7 wherein:

the acrylated epoxy oligomer is present in an amount from 3 % to 5 % of the weight of the ferromagnetic composition;

the photoinitiator is present in an amount from 2 % to 6 % of the weight of the ferromagnetic composition;

the acrylated aliphatic oligomer mixture is present in an amount from 25 % to 35 % of the weight of the ferromagnetic composition;

the flow promoting agent is present in an amount from 0.1 % to 6 % of the weight of the ferromagnetic composition; and

the magnetic powder is present in an amount from 30 % to 50 % of the weight of the ferromagnetic composition.

10. The photocurable ferromagnetic composition of claim 7 wherein:

the acrylated epoxy oligomer is present in an amount of 4 % of the weight of the ferromagnetic composition;

the photoinitiator is present in an amount of 4.5 % of the weight of the ferromagnetic composition;

the acrylated aliphatic oligomer mixture is present in an amount of 30 % of the weight of the ferromagnetic composition;

the flow promoting agent is present in an amount of 3 % of the weight of the ferromagnetic composition; and

the magnetic powder is present in an amount of 40 % of the weight of the ferromagnetic composition.

11. The ferromagnetic composition of claim 1 wherein the photoinitiator is selected from the group consisting of:

1-hydroxycyclohexyl phenyl ketone;

2-methyl-1-[4-(methylthio)phenyl]-2-morpholino propan-1-;

the combination of 50% 1-hydroxy cyclohexyl phenyl ketone and 50% benzophenone;

2,2-dimethoxy-1,2-diphenylethan-1-one;

the combination of 25% bis(2,6-dimethoxybenzoyl-2,4-, 4-trimethyl pentyl phosphine oxide and 75% 2-hydroxy-2-methyl-1-phenyl-propan-1-one;

2-hydroxy-2-methyl-1-phenyl-1-propane;

the combination of 50% 2,4,6-trimethylbenzoyldiphenyl-phosphine oxide and 50% 2-hydroxy 2-methyl-1-phenyl-propan-1-one;

mixed triaryl sulfonium hexafluoroantimonate salts, mixed triaryl sulfonium hexafluorophosphate salts; and

mixtures thereof.

12. The ferromagnetic composition of claim 1 wherein the acrylated epoxy oligomer is selected from the group consisting of:

novolac epoxy acrylate diluted 20 % by weight with tripropylene glycol diacrylate;

difunctional bisphenol based epoxy acrylate; and

mixtures thereof.

13. A photocurable ferromagnetic composition comprising:
an acrylated epoxy oligomer;
an isobornyl acrylate monomer;
a photoinitiator; and
a magnetic powder.

14. The photocurable ferromagnetic composition of claim 13 wherein the magnetic powder is ferrite.

15. The photocurable ferromagnetic composition of claim 13 further comprising an acrylated aliphatic oligomer mixture.

16. The photocurable ferromagnetic composition of claim 13 further comprising a flow promoting agent.

17. The ferromagnetic composition of claim 13 wherein the isobornyl acrylate monomer is selected from the group consisting of isobornyl acrylate, isobornyl methacrylate, and mixtures thereof.

18. The ferromagnetic composition of claim 13 wherein the photoinitiator is selected from the group consisting of:
1-hydroxycyclohexyl phenyl ketone;
2-methyl-1-[4-(methylthio)phenyl]-2-morpholino propan-1-;
the combination of 50% 1-hydroxy cyclohexyl phenyl ketone and 50% benzophenone;
2,2-dimethoxy-1,2-diphenylethan-1-one;
the combination of 25% bis(2,6-dimethoxybenzoyl-2,4-, 4-trimethyl pentyl phosphine oxide and 75% 2-hydroxy-2-methyl-1-phenyl-propan-1-one;
2-hydroxy-2-methyl-1-phenyl-1-propane;
the combination of 50% 2,4,6-trimethylbenzoyldiphenyl-phosphine oxide and 50% 2-hydroxy 2-methyl-1-phenyl-propan-1-one;
mixed triaryl sulfonium hexafluoroantimonate salts, mixed triaryl sulfonium hexafluorophosphate salts; and

mixtures thereof.

19. The ferromagnetic composition of claim 13 wherein the acrylated epoxy oligomer is selected from the group consisting of:

novolac epoxy acrylate diluted 20 % by weight with tripropylene glycol diacrylate;

difunctional bisphenol based epoxy acrylate; and

mixtures thereof.